AMENDMENTS TO THE CLAIMS

1. (Previously Presented) A data transmitting apparatus for transmitting a plurality of real time streams and a non-real time stream over a common transmission path, comprising:

a storing portion for storing first packets that compose the real time streams and second packets that compose the non-real time stream so that a first-in-first-out operation is respectively performed for every stream;

a counter portion for counting an interval time of the first packets for every said real time stream; and

a scheduler portion for transmitting the first packets stored for every said real time stream in the storing portion every said interval time period, calculating a transmission end time of the first packets from the interval time and a transmission time of the first packets of each of the real time streams for every said real time stream and transmitting a first packet whose transmission end time is the earliest in the first packets when the transmission times of the first packets overlap, and transmitting the second packets when the transmission intervals of said first packets are longer than the transmission times of the second packets.

2. (Cancelled)

3. (Previously Presented) The data transmitting apparatus as set forth in claim 1, wherein the scheduler portion is configured to treat times shorter than the transmission times of the second packets as new transmission times of the second packets when the second packets are not transmitted while a predetermined number of the first packets are transmitted.

4. (Previously Presented) A data transmitting method for transmitting a plurality of real time streams and a non-real time stream over a common transmission path, comprising:

a first step of storing first packets that compose the real time streams and second packets that compose the non-real time stream so that a first-in-first-out operation is respectively performed for every stream;

a second step of counting an interval time of the first packets for every said real time stream; and

a third step of transmitting the first packets stored for every said real time stream in said first step every said interval time period, calculating a transmission end time of the first packets from the interval time and a transmission time of the first packets of each of the real time streams for every said real time stream and transmitting a first packet whose transmission end time is the earliest in the first packets when the transmission times of the first packets overlap, and transmitting the second packets when the transmission intervals of said first packets are longer than the transmission times of the second packets.

5. (Cancelled)

6. (Previously Presented) The data transmitting method as set forth in claim 4, wherein in said third step times shorter than transmission times of the second packets are treated as new transmission times of the second packets when the second packets are not transmitted while a predetermined number of the first packets are transmitted.

7. (Cancelled)

8. (Cancelled)

9. (New) A data transmitting apparatus for transmitting a plurality of real time streams and a non-real time stream over a common transmission path, comprising:

a plurality of memory buffers that store packets of real-time streams and packets of non-real-time stream so that a first-in-first-out operation is respectively performed, one memory for every stream;

a scheduler that assigns scheduled transmission times to said packets of real-time streams;

a plurality of counters that count time between said scheduled transmission times of said packets of real-time streams, one counter for every stream;

a calculator that calculates transmission end times of both said packets of real-time streams and said packets of non-real-time stream; and

a transmitter that transmits said packets of real-time streams and said packets of non-real-time stream;

wherein said transmitter is configured to:

transmit at said scheduled transmission times said packets of real-time streams stored in said memory;

transmit said packets of real-time streams in order of earliest transmission end times when transmission times of said packets of real-time streams overlap;

transmit a packet of non-real-time stream when the transmission end time of said packet of non-real-time stream is earlier than any of the assigned transmission times of the packets of real-time streams; and

not transmit a packet of non-real-time stream when the transmission end time of said packet of non-real-time stream is later than any of said scheduled transmission times of said packets of real-time streams.

10. (New) The data transmitting apparatus as set forth in claim 9, wherein the transmitter is further configured to treat packets of non-real-time stream as if their transmission end times were earlier when packets of non-real-time stream are not transmitted after a predetermined time has elapsed.

11. (New) The data transmitting apparatus as set forth in claim 9, wherein the transmitter is further configured to treat packets of non-real-time stream as if their transmission end times were earlier when packets of non-real-time stream are not transmitted after a predetermined number of packets of real-time streams have been transmitted.

12. (New) A data transmitting method for transmitting a plurality of real time streams and a non-real time stream over a common transmission path, comprising the steps of:

(a) storing packets of real-time streams and packets of non-real-time stream in memory buffers so that a first-in-first-out operation is respectively performed;

(b) assigning scheduled transmission times to said packets of real-time streams;

(c) counting time between said scheduled transmission times of said packets of real-time streams;

(d) calculating transmission end times of both said packets of real-time streams and said packets of non-real-time stream; and

(e) transmitting said packets of real-time streams and said packets of non-real-time stream;

wherein said transmitting step (e) comprises:

transmitting at said scheduled transmission times said packets of real-time streams stored in said memory;

transmitting said packets of real-time streams in order of earliest transmission end times when transmission times of said packets of real-time streams overlap;

transmitting a packet of non-real-time stream when the transmission end time of said packet of non-real-time stream is earlier than any of the assigned transmission times of the packets of real-time streams; and

not transmitting a packet of non-real-time stream when the transmission end time of said packet of non-real-time stream is later than any of said scheduled transmission times of said packets of real-time streams.

13. (New) The data transmitting method as set forth in claim 12, wherein in said transmitting step (e) further comprises treating packets of non-real-time stream as if their transmission end times were earlier when packets of non-real-time stream are not transmitted after a predetermined time has elapsed.

14. (New) The data transmitting method as set forth in claim 12, wherein in said transmitting step (e) further comprises treating packets of non-real-time stream as if their transmission end times were earlier when packets of non-real-time stream are not transmitted after a predetermined number of packets of real-time streams have been transmitted.